

WE CLAIM:

1. A gas generator for a vehicle occupant protection system comprising:

an elongated housing having a predetermined length and having a first end and a second end;

a plurality of gas exit orifices spaced along the length of said housing;

a propellant body contained within said housing, said propellant body having a length substantially coextensive with said housing; and

an ignition body substantially coextensive with said propellant, said ignition body in physical contact with said propellant for substantially the length of said propellant and said ignition body having a burn rate at least twice that of said propellant body,

wherein ignition of said ignition body essentially provides uniform ignition and combustion of said propellant body along the entire length thereof.

2. The gas generator of claim 1 further comprising a perforated sleeve contained within said housing and substantially coextensive therewith, wherein said propellant is housed within said sleeve.

3. The gas generator of claim 1 further comprising a plurality of filters wherein each filter corresponds to and is fixed over at least one gas exit orifice in said plurality of gas exit orifices thereby filtering gases exiting the gas generator.

4. The gas generator of claim 2 further comprising an annular filter contained within said housing and substantially coextensive therewith, wherein said annular filter encases said perforated sleeve.

5. The gas generator of claim 1 further comprising an insulator wrapped about said housing wherein said insulator has a plurality of gas exit apertures corresponding to said plurality of gas exit orifices.

6. A gas generator for a vehicle occupant protection system comprising:

an elongated housing having a predetermined length and a plurality of gas exit orifices spaced along said length, said housing having a first end and a second end;


a propellant body contained within said housing, said propellant body having a length substantially coextensive with said housing, said propellant comprising a mixture of silicone as a fuel at about 10-25% by weight and an oxidizer at about 75-90% by weight, said percentages stated by weight of said propellant body; and

an ignition body substantially coextensive with said propellant, wherein said ignition body in physical contact with said propellant for substantially the length of said propellant, wherein ignition of said ignition body provides essentially uniform ignition and combustion of said propellant body along the entire length thereof.

7. The gas generator of claim 6 wherein said oxidizer is selected from the group consisting of sodium perchlorate, ammonium perchlorate, lithium perchlorate, potassium

perchlorate, strontium nitrate, potassium nitrate, ammonium nitrate, phase stabilized ammonium nitrate, and mixtures thereof.

5 8. The gas generator of claim 6 wherein said propellant mixture further comprises a coolant selected from the group consisting of metal hydroxides, metal carbonates, inorganic oxalates, and mixtures thereof, said coolant provided at about 1-30% by weight of said propellant body

10  9. The gas generator of claim 2 wherein said propellant mixture further comprises strontium carbonate at about 1-30% by weight of said propellant body.

15 10. The gas generator of claim 6 wherein said oxidizer is a perchlorate oxidizer.

11. A gas generator for a vehicle occupant protection system comprising:

20 an elongated housing having a predetermined length and a plurality of gas exit orifices spaced along said length, said housing having a first end and a second end;

25 a propellant body contained within said housing, said propellant body having a length at least substantially coextensive with said housing, said propellant comprising a mixture of silicone as a fuel at about 10-25% by weight, a perchlorate oxidizer at about 75-90% by weight, and a coolant selected from the group consisting of metal hydroxides, metal carbonates, inorganic oxalates, and mixtures thereof at about 1-30% by weight, said percentages stated by weight of said propellant body; and  
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an ignition body at least substantially coextensive with said propellant, wherein said ignition body is in physical contact with said propellant for at least substantially the length of said propellant,

wherein ignition of said ignition body provides essentially uniform ignition and combustion of said propellant body along the entire length thereof.

12. The gas generator of claim 11 wherein said propellant mixture further comprises 1-20% by weight of a slag forming constituent, said percentage stated by weight of said propellant body.

13. The gas generator of claim 12 wherein said slag forming constituent is selected from the group consisting of aluminum oxide and iron oxide.

14. The gas generator of claim 11 wherein said coolant is selected from the group consisting of aluminum hydroxide, calcium carbonate, magnesium carbonate, strontium carbonate, sodium carbonate, calcium oxalate, strontium oxalate, and ammonium oxalate.

15. A gas generator for a vehicle occupant protection system comprising:

an elongated housing having a predetermined length and a plurality of gas exit orifices spaced along said length, said housing having a first end and a second end;  
a propellant chamber centrally disposed of said housing;

a propellant body contained within said chamber, said propellant body having a length at least substantially coextensive with said housing, and said propellant comprising a mixture of silicone as a fuel at about 10-25% by weight and an oxidizer at about 75-90% by weight, said percentages stated by weight of said propellant body; and

an ignition body at least substantially coextensive with said propellant, wherein said ignition body is in physical contact with said propellant for at least substantially the length of said propellant,

wherein ignition of said ignition body provides essentially uniform ignition and combustion of said propellant body along the entire length thereof.